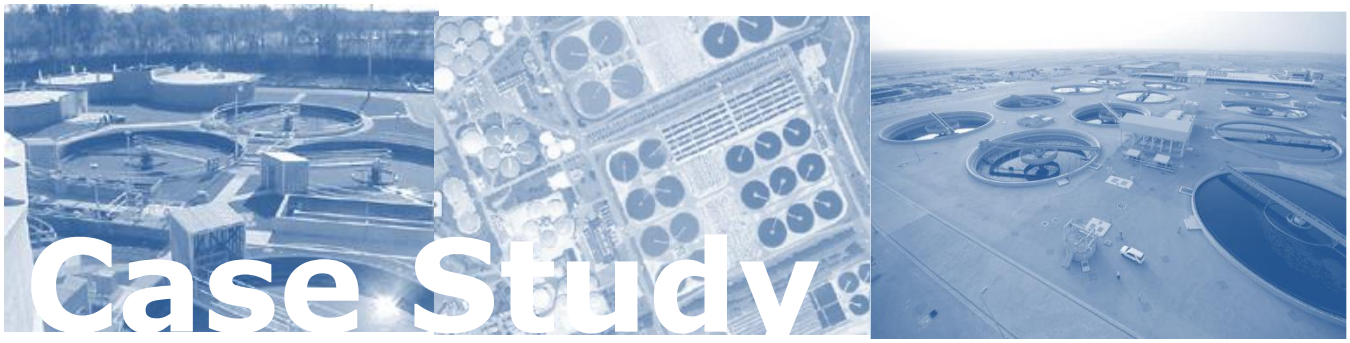


Ambient Air Monitoring Applications

Waste water treatment plants

Screening area: stripping

Context & Challenges

Globally, the wastewater treatment is the first public health issue. Urban development leads to urbanization near waste water treatment plant and extension of sewerage network. These aspects induce to an augmentation of sulfur compounds (H2S, mercaptans and sulfides) which are very corrosive, odorant and toxic. To monitor these compounds online CHROMATOTEC® offers high meteorological solutions.

To ensure the safety of operatives in the screening building/area of waste water treatment works an H2S analyzer has been installed in the main building to complement the protection provided by individual monitors. Chromatographic measurements show that other sulfurous compounds including Methylmercaptans are present in the air in addition to H2S.
Five outlets in the building are located near six rough screens dedicated to primary treatment. The presence of sulfur compounds can vary from screen to screen and from one day to the next depending upon the quality of the incoming waters. Measurements need to be taken as close to the incoming water as possible. Results for each area are visually presented near the entry/exist

Chromatotec® Solutions

TRS MEDOR ppb or ppm for up to 14 compounds
With only one instrument, it is possible to analyze up to 14 sulfur compounds. Thanks to specific sulfur detector (SSD) and AIR or N2 carrier gas, the separation and sensitivity is excellent down to 1 ppb levels and low odor unit/m^3.
The instruments are being calibrated with primary gas standard certified at ±2%. There are **no interferences** due to the gas chromatography separation and the sulfur specific detector. The analyzer is **LINEAR**: range 0 / 100 ppb.

The instruments are fully automated thanks to internal calibration (**airmoCAL**). The **VISTACHROM** software controls the analyzers, multiplexer, meteorological station and enables storage and display of the chromatograms thanks to Peak Viewer.
It is possible to transfer data to a data logger or modelling software with the communication protocols MODBUS RTU, JBUS, German PROTOCOL and X-Path.

TRS MEDOR system

1. Sampling: the analyzer has a multiplexer that allows for the six inlets. The maximum length between the analyzer and the sampling point is 10 meters. The atmosphere around the screens is quite humid and incoming lines are setup to stop humidity reaching the analyzer.

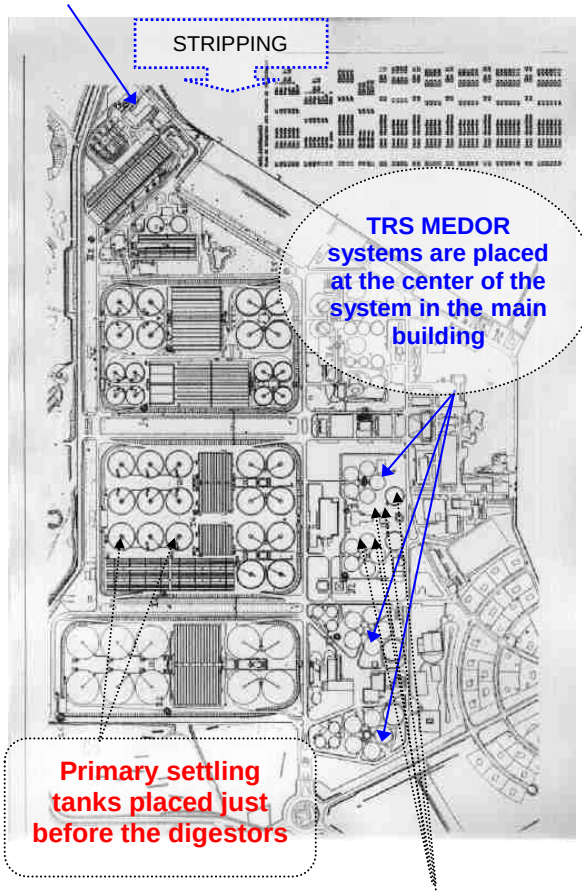
2. Analyzer: is capable of measuring H2S and mercaptans in ambient air. Compounds like IPM, TBM, NPM, MES, 2BM and NBM are optional. The measuring range of the two compounds is between 1 ppb and 1000 ppm.

3. Alarms: compound concentrations are visible locally and are also relayed to a supervising system. A visual and audible alarm can be activated when threshold levels are achieved. The remote analyzer can also provide alarms to the supervising system.

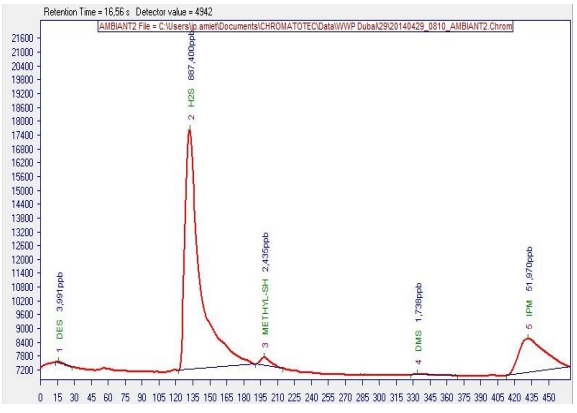
4. Protection of the analyzer and of other systems: included in a temperature-controlled cabinet to ensure continued reliable operation.

Map of Waste Water Site

Analyzers at the STRIPPING



5 measuring points of filter efficiency by system



IPM= IsoPropylMercaptan, we can see this kind of mercaptans in ambient air of waste water treatment plant. They come from fertilizer.

Conclusion:

TRS MEDOR, the adequate solution for in situ sulfur analysis and odor monitoring for surveillance of wastewater treatment plant:

- Fully automated with gas generator (N2 or Air/Calibration gas)
- Data transfer to a data logger or by modem or Ethernet
- Stability and repeatability (from 1 ppb to 1000 ppm, areas and retention times)
- Linearity (from 1 ppb to 1000 ppm)
- In compliance with ISO 6326/2 norm and DIN 51855/7, no interferences
- Approval on sulfurs (ASTM D7493-08 2008)
- In standard, TRS MEDOR analyzes 7 compounds H2S, SO2, MM, EM, DMS, DES and DMDS
- In option up to 14 sulfurs THT, H2S, SO2, MM, EM, DMS, IPM, TBM, NPM, MES, 2BM, DES, NBM and DMDS.
- NEW: manage meteorological station and communicate with odor modelling software
- OPTION ppt range with a pre concentration trap for DMS/DES and DMDS